

## **King County LinkUp Shingles in Paving Demo Project**

### ***Summary of Advisory Group Meeting #2, Tuesday July 8, 2008***

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These notes summarize the second meeting of the Advisory Group for the King County LinkUp Shingles in Paving Demonstration Project. The meeting was held on Tuesday July 8, 2008 at the King Street Center in Seattle, WA.

*The following Advisory Group members participated:*

- *Bill Brickey, Wilder Construction Company*
- *Joe DeVol, WSDOT*
- *Kevin Kelsey, KCDOT*
- *Merv Reykdal, American Roofing Recyclers*
- *Jim Eagan, KCDOT*
- *Steven Read, SPU*
- *John Yeasting, Glacier Recycle*
- *Gabriella Uhlar-Heffner, SPU*
- *Jeff Uhlmeier, WSDOT*
- *Victor Woo, KCDOT*

*The following project staff participated:*

- *Kris Beatty, King County LinkUp*
- *Julie Colehour, King County LinkUp Consultant Support (Colehour + Cohen)*
- *Katie Kennedy, King County LinkUp Consultant Support (Cascadia Consulting Group)*
- *Dan Krivit, King County LinkUp Consultant Support (Dan Krivit & Associates) (via phone)*

*The following Advisory Group members were absent but were given the opportunity to provide input and feedback on the draft meeting notes:*

- *Ben Hansen, SDOT*
- *Dick Lilly, SPU*
- *John Grisham, Woodworth & Company*
- *Jim Weston, WSDOT*
- *Rick Hess, Puget Sound Clean Air Agency*

## **MEETING OBJECTIVES**

- Provide project update
- Describe project selection process
- Review recycled asphalt shingles (RAS) specification
- Describe RAS procurement process
- Discuss pavement test section

## **KEY OUTCOMES**

- The group discussed the pros and cons of the condition of the road project and how the demonstration and control sections should be paved.
- There was a good discussion about the draft RAS spec.

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- There were differing opinions as to whether RAP should be included in the demonstration project. It was determined that the project team should regroup on this issue.
- There was fairly good agreement on the details of a test section.

#### **AGENDA ITEM #1: PROJECT UPDATE**

Kris Beatty recounted happenings since the last Advisory Group Meeting: several members attended the 3<sup>rd</sup> Asphalt Shingle Recycling Forum in November, Seattle Public Utilities committed \$10,000 to supporting project, and KCDOT has committed to being a partner in the project. (Copies of the project budget and timeline were handed out.)

#### **AGENDA ITEM #2: PROJECT SELECTION PROCESS**

Kevin Kelsey outlined the project selection process in the following steps.

- 1) Preconstruction paving condition survey: walk the road and do detail of current state
- 2) Look at different patterns with cracks: note those areas for future reference
- 3) Core the roadway to look at consistency and look at conditions of cores
- 4) Consider performing some subsurface evaluation of soils in that area to determine soil conditions
- 5) Deflectometer testing: put pressure on asphalt to simulate truck load in order to predict light structural integrity of roadway
- 6) Fix cracks
- 7) Construction monitoring and documentation for gradation and testing
- 8) Findings summarized in a report
- 9) Post-construction monitoring will include paving condition monitoring on an annual basis

Below is a summary of the discussion surrounding the project selection process.

#### ***How much shingles will likely be needed (John Yeasting)?***

- 3% to 5% of 3,000 tons will be shingles (Victor Woo).

#### ***There were several suggestions about the type of road and how it should be paved.***

- The same paving mix will be used on the shoulder (Kevin Kelsey).
- It would be helpful to have a section of roadway that includes varied pavement as well as problem sections (Steven Read).
- Paving section should have a lot of loading (Steven Read).
- If it does vary, perhaps only pave one lane to see comparison (Gabriella Uhlar-Heffner).
- If you go 3 miles, you can still do test sections back to back (Jeff Uhlmeier).
- We might do a combination of side-to-side and end-to-end (Jim Eagan).
- What's the planning ratio of experimental with non-experimental? 50/50? I think it depends on the road specifics (Dan Krivit).
- How much are we laying down per day (Kevin Kelsey)?
- 2,000 tons per day; 1,400 per day for residential (Jim Eagan).

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- This will probably be a 2-day operation (Steven Read).
- Using a “Hopper” or shuttle buggy is standard procedure for SDOT and KCDOT would like to require it on this project (several).

***Overall, what’s the total tons of pavement laid down by King County (John Yeasting)?***

- About 140,000 tons per year, between us and our partnering agencies, not including transit or other paving. (Jim Eagan)

***Would this group be able to help with evaluation on a private project that used 25% shingles in the mix design (John Yeasting)?***

- KCDOT has concerns about liability (Jim Eagan).
- KCSWD might be able to support such an effort (Kris Beatty).

**AGENDA ITEM #3: RAS SPECIFICATION REVIEW**

Dan Krivit mentioned several key goals of the RAS spec.

- Develop a 2-spec theme. This is the RAS spec and Joe is working on the HMA spec, but that’s not a subject for today’s meeting.
- Intent is to ensure engineering performance of HMA including specifics about gradation, deleterious limits, and moisture levels.
- Provide for worker safety/health.
- Provide a scheme to allow for KC to go through a procurement process for this demonstration. This is based on other specs and the proposed amendments to the AASHTO shingles spec.

***How do we define “shall contain no known hazardous material” (Bill Brickey)?***

Would like to see language changed to “is not known to contain hazardous material” rather than “no known hazardous material” (Bill Brickey).

***What about fumes from heating it (Kris Beatty)?***

- I’m not aware of any known data or risk from the hot mix plant itself. There are no known stack tests with and without shingles (Dan).

***I have been questioned about the asbestos issue as well as fire retardants. How do we know shingles are safe to use (Kevin Kelsey)?***

- I’m not sure about fire retardants. I think asbestos is the #1 environmental concern. We have a fairly aggressive plan to test shingles. If there are other questions, such as flame retardants or hot mix plant fumes, we should record those and re-visit (Dan Krivit).
- Grinding does increase the risk of dust exposure to workers operating the shingles recycling plant. The dust management plan overall needs to be addressed by operators and something King County should look at very carefully when reviewing qualifications (Dan Krivit).

*Dan will look into what has been learned about chemicals that shingles contain from other demonstration projects.*

***Wondering about limitation to only non-regulated structures. Our experience is that larger structures have much more monitoring and testing. If a larger structure, but has had an AHERA survey, what's the downside (John Yeasting)?***

- This is based on how other states, such as Minnesota, have addressed this issue. This demonstration project should not be viewed as precedent-setting (Dan Krivit).

Several members of the group suggested revisions to the RAS spec, which Dan Krivit will incorporate into the next version. A discussion on the merits of including RAP followed Dan Krivit's statement that the current plan is to not include RAP in the mix. Highlights are listed below.

- Would it be compared to a conventional virgin mix then (Kevin Kelsey)?
- Yes (Dan Krivit).
- Contractors will choose RAP over RAS. Will we need a new demonstration three years from now with RAP and RAS? If the intention is to make an acceptable product, then maybe include RAP (Kevin Kelsey).
- RAP is too variable. Because we want a good estimation of RAS, we should limit the variables. Maybe test for RAP in 2010 (Joe DeVol).
- This is the first step towards a spec that will include RAS and RAP (Dan Krivit).
- Although it may be preferable to limit the variables from a study standpoint, it is a dead issue if it can not be incorporated with RAP (Steven Read).

#### **AGENDA ITEM #4: RAS PROCUREMENT PROCESS**

*It was decided that a description of the procurement process would be distributed via email due to insufficient time during the meeting.*

#### **AGENDA ITEM #5: REVIEW DRAFT TESTING PROTOCOL**

Joe Devol described the testing that WSDOT will likely do on the mix design. We would test gradation, asphalt content, binders on RAS from suppliers on pre-approved list. With that information, we can recommend changes on mix design.

#### **AGENDA ITEM #6: TEST SECTION DISCUSSION**

Joe DeVol informed the group that the team is considering an off-site test section. The goal is to, first, minimize concerns or questions with the laboratory analysis. Then, place the mix somewhere it can be evaluated and work out constructability issues prior to placement on the roadway. Call it "off-site test section" or "calibration strip." On the project, because of short distance, you can't go through much testing.

***How many tons off-site (Jim Eagan)?***

- I think paving manufacturers will want 200 to 600 tons of HMA before they feel comfortable (Joe DeVol).
- I would tend more towards 600 tons. (Bill Brickey).
- It would be great if we could use ATB (Steven Read).

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- We did a test section in front of our plant in Everett and that worked out pretty well. We're a gravel producer too; we could pave a strip out in one of our gravel yards (Bill Brickey).
- Only problem is additional charge per ton (Joe DeVol).
- It is a little bit of a cost penalty to not allow the use of RAP, to produce an all-virgin mix in terms of AC prices the way they are (Bill Brickey).

***At our first advisory group meeting, we talked about a plant needing 3,000 tons of material. We would benefit from knowing how it would work for a plant to do that twice for test section and for the experiment. And, what would the timing be (Kris Beatty)?***

- It is preferable to do it reasonably close (1-2 days) to the production paving to minimize changes in your aggregate. We would not want them to be separated by 2 months (Bill Brickey).
- Think the bigger issue is switching between mixes in a day. Plant production should be dedicated for a full day (Steven Read).
- I don't know if that's an issue at other plants, but we switch all the time and don't find an issue with that (Bill Brickey).
- One recommendation is to do test section 2 days before. I remember hearing as low as 2,000 tons (Joe DeVol).
- We've heard as low as 1,000 tons (Katie Kennedy).

## **NEXT STEPS**

- Dan will share AASHTO spec with the group.
- Team to draft notes from meeting and distribute along with a description of the RAS procurement process.
- Convene again in September.